

ABSTRACT OF THE DISCLOSURE

2           A method for generating a laser output signal includes the steps of: generating an  
optical pump signal that is a sequence optical pulses each having a duration of about  $n\tau_f$ ,  
4           where  $\tau_f$  represents a fluorescence lifetime of a laser dye and  $3 \leq n \leq 25$ ; directing the optical  
pump signal into an optical resonant cavity having a laser dye gain element that contains the  
6           laser dye for transforming the optical pump signal into an excited optical signal; resonating  
the excited optical signal in the optical resonant cavity; and emitting a portion of the excited  
8           optical signal from the optical resonant cavity.